Attachment – Description of Recommended Key Initiatives

Key Strategic Initiatives: In Progress

The following key strategic initiatives are currently in progress:

Update City Paging Network

ISSUES

- Obsolete encoding technology limits City's ability to obtain replacement pagers
- Current paging transmitters no longer supported by manufacturer
- Current paging terminal no longer supported by manufacturer
- Encoding technology's speed limits ability to add additional users
- Better building penetration and paging reliability desired in many areas
- Improved network coverage in North and East San Diego County outside City limits to reach off-duty emergency personnel

BUDGET: $300,000

FUNDING AVAILABILITY: Yes -Project underway

Key Strategic Initiatives: Immediate/Short-Term

The following key initiatives are proposed to begin within 3 years or less:

New Digital Microwave Network

ISSUES:

- Many existing segments at capacity
- Significant new additional capacity needed for:
  — New radio system
  — New mobile data capacity
  — New dispatch consoles
  — New Water Department strategic operational requirements
- In-place equipment no longer manufactured; parts support has become problematic
- Existing network designed for analog voice network; adding digital technologies problematic

BUDGET: $3,000,000 for replacement of existing sites; (Funding does not include potential new or additional sites)

FUNDING AVAILABILITY: Short term repairs underway. Replacement funding currently undefined

New Wide-Area Mobile Data Network

ISSUES:

- A Large number of strategic mobile data requirements exist throughout City operations, notably in Public Safety and Enterprise Departments

- Public Safety requirements are essential to smooth daily operations

- Fire operations built on "dynamic dispatch" concept that requires high-performing data network to carry unit location information

- Police implementing new Records Management and Automated Field Reporting systems, which will dramatically escalate bandwidth requirements

- Existing network too slow (4800 bits/sec) to support data thruput needs, slow with current MDT Network users

- Technology in use by City was sold by original supplier to another manufacturer who then discontinued manufacture and support a few years after implementation by the City

- Existing network not capable of supporting the City's general technological direction (IP-based applications and open architecture networks)

- Existing network cannot provide sufficient capacity to address even current needs of entire City

- Insufficient equipment on hand to meet current demands -- no equipment in BLS ambulances or Fire staff vehicles to ensure availability for line Fire apparatus and ALS ambulances

- Due to strategic & life-safety-sensitive nature of many users, mobile data network should ideally be owned or controlled by the City

- Technology needed to meet City's requirements on horizon, but commercial availability unlikely before 2005

- Required spectrum for City-owned solution (700 MHz) not likely to be available in San Diego before 2006/7 - may not be available even then due to regulatory/border issues

- Carrier-provided services have been implemented to provide a bridge to higher-speed services

- Original interim solution (CDPD) will not be available for use after 2004

- New carrier-provided solution (2.5G and 3G services) provides 5 - 7 times the performance of CDPD, but at almost double the (current) monthly recurring cost - cost may be able to be reduced through negotiation

RECOMMENDATIONS:

- Because implementing optimal long-term solution must wait for availability of technology, equipment and spectrum, interim steps are needed:

- **Interim Steps:**

  — Begin migration of City users from existing private data network and CDPD to other commercially-provided services, such as the "2.5G" and "3G" data services now available from various carriers

  — Migrate City applications to open architecture, IP base to minimize or eliminate problems incurred by changing transmission media

  — Re-purpose existing Mobile Data Network frequencies to voice radio network as users leave

- **Intermediate to Long-Term Steps:**

  — Design, acquire and implement City-owned Mobile Data Network on public safety frequencies at 700 MHz

  — Migrate public-safety users to City-owned network once established

  — Migrate other users if cost-effective and network performance is adequate

TIMEFRAME: Interim Steps, immediate to two years; Intermediate to Long-Term Steps, two to six years

BUDGET: Interim Steps, $3 - 5 Million; Intermediate to Long-Term Steps, $6 - 8 Million

FUNDING AVAILABILITY: Police Department interim steps funded and underway. Fire/Rescue Department Funding for interim steps undefined. Funding for Long-term Steps currently undefined

Key Strategic Initiatives: Intermediate Term

The following initiatives are considered Intermediate Term, and are proposed for the next three to seven years:

New City Voice Radio Network & Control Equipment

ISSUES:

- Current network uses proprietary analog technology now at the end of the product life cycle

- Network central controller running at or beyond capacity

- Current number of 800 MHz channels adequate for current user base, but cannot adequately handle additional users from other City departments

- Limited interoperability with RCS due to analog City Network and analog/digital RCS network

- Limited interoperability between City departments as not all departments on the 800 MHz network

- Very limited secure communications capability - requires use of "special" radios that require specific issue

- Strong need for improved in-building coverage City-wide

- Network provides poor coastal area coverage

- Other geographic areas also have less than optimal coverage

- Consoles/dispatch equipment approaching end of service life

- Recording equipment in use not compatible with trunking technology

RECOMMENDATIONS:

- Design, acquire and implement new APCO Project 25 radio network, including new consoles/control equipment

- Continue to maintain and strengthen cooperative and interoperational ties with RCS, including potential participation in wide-area "zone" network and direct network connectivity

- Develop policy on network accessibility and secure communications - needed because the City will probably not be able to financially justify secure radios for all users

- Replace existing recording equipment with equipment fully compatible with the new network

TIMEFRAME: Two to six years

BUDGET: $60 -70 Million

FUNDING AVAILABILITY: Currently undefined

New Primary Public Safety Dispatch Facility

ISSUES:

- Existing Police Communications Center "landlocked"; no available expansion space

- Existing City 800 MHz Radio Network "Prime Site" components at Police Communications Center; no space available for addition of proposed new network components

- Existing Fire Communications Center also "landlocked" with no room for growth

- Backup City EOC space needed to address contingent loss-of-use of existing dispatch centers and EOC facility in large-scale emergency impacting Downtown area

- Physically diverse PD/FD communications facilities complicates interoperability and real-time information sharing

RECOMMENDATIONS:

- Construct a new, multi-function dispatch facility to support the following functions:

  — 9-1-1 Primary Public Safety Answering Point

— Primary Police Communications Center
— Primary Fire/EMS Communications Center
— Secondary Lifeguard Communications Center
— Backup City Emergency Operations Center

BUDGET: $15-20 Million; $13-17 Million for building, $2-3 Million for radio consoles

FUNDING AVAILABILITY: Currently undefined

Design, Acquire and Implement New CAD Systems

ISSUES:

- Police CAD (Computer Assisted Dispatch) system is at the end of its technology lifecycle

- Very limited upgrade path for PD CAD; cannot support dynamic dispatch

- Fire/EMS CAD system has a more modern architecture that can be extended through upgrades in the interim

- Neither CAD system supports mobile 9-1-1 Phase II location information

- No interoperation between Police and Fire/EMS CAD systems

- No ability to share information with adjoining jurisdictions

RECOMMENDATIONS:

- Acquire new CAD system (or systems) capable of serving Police and Fire/EMS requirements

- Need not be a single system -- may be difficult to find single vendor capable of optimally addressing both Police and Fire/EMS requirements -- but systems need to be able to share information and interoperate with each other

- Must fully support dynamic dispatch

- Must fully support Mobile 9-1-1 Phase II position data interface

BUDGET: $10-12 Million

FUNDING AVAILABILITY: Currently undefined

Improve Communications Technical Support Capabilities

ISSUES:

The planning process has identified issues with several technological support capabilities for IT&C Department, Communications Division. These are:

Radio Direction Finding:

- Existing City Radio Direction-Finding Vehicle in poor mechanical condition

- Vehicle is too high-profile to assist in law enforcement missions
- Effective City Radio Direction-Finding capability needed to address routine technical   issues

Backup/Temporary Mobile Communications:

- No backup equipment available in the event of a trunking site being destroyed
- City has no ability to provide temporary high-capacity communications service integrated   with existing City operations for special events and emergency operations
- City has no ability to provide service in areas not regularly covered by City 800 MHz Radio Network, such as remote canyons

Backup/Temporary Fixed Communications:

- City has no ability to provide high-capacity, fixed-location communications services for   special event or emergency operations
- City has no ability to provide high-capacity communications restoration services to key sites

RECOMMENDATIONS:

- Design, acquire and implement the following:
  — New Radio Direction-Finding Vehicle to address both technical interference tracking needs and law enforcement missions.
  — Mobile Trunking Site, to permit reinforcement of radio communications capacity in the event of fixed site failure, or for special events.
  — 3 Sets of Rapid-Deployment Microwave Radios and Multiplexers, both for emergency service restoration and for special event transmission requirements.

BUDGET: $700,000 total; $50,000 for Vehicle, $150,000 for Rapid-Deployment Microwave, $500,000 for Mobile Trunking Site

FUNDING AVAILABILITY: Currently undefined

New Fire Station Alerting Network/Hardware

ISSUES:

- The in-use fire station alerting network was custom-manufactured for the City
- Replacement devices no longer available
- The City plans to construct additional fire stations within the next 10 years
- Existing network provides little information to first responders
- Existing alerting network stressful to responders, particularly on overnight responses

RECOMMENDATION:

- Design, acquire and implement a new Fire Station Alerting Network from a proven commercial source that utilizes modern alerting and notification technology

BUDGET: $1.5 Million

FUNDING AVAILABILITY: Currently undefined

Key Strategic Initiative: Long Term

The following key strategic initiative is viewed as long term, and is targeted for 8 to 10 years:

<u>Convert Existing Fire Comm Center to multi-functional Public Service Comm/3-1-1 call center/Backup Public Safety Comm/Training Facility</u>

ISSUES:

- City currently has no location suited for housing 3-1-1 call-taking operation
- Station 38 Public Service communications center is "landlocked"
- Public Safety communications require an effective backup facility, even with new dispatch center
- Existing Fire Communications Center will be available after relocation to new facility

RECOMMENDATIONS:

- Once Fire Communications has relocated to the new facility, adapt the existing Fire Communications Center to support the following functions:
    — Primary 3-1-1 Call-Answering Point
    — Primary Public Works Dispatch Point
    — Backup 9-1-1 Primary Public Safety Answering Point
    — Backup Police Communications Center
    — Backup Fire/EMS/Lifeguard Communications Center
    — Police Communications Training Facility
    — Fire Communications Training Facility
- With backup Public Safety communications facilities in place, center can serve as a training site for City communicators.

BUDGET: $4-5 Million, including equipment and software

FUNDING AVAILABILITY: Currently undefined

Legislative Initiative

Enactment of a Signal Booster Ordinance

ISSUES:

- The City cannot cost-effectively design a radio system to provide effective coverage inside every structure
- Despite this, Public Safety needs dictate that effective communications be possible from inside structures

GOALS & OBJECTIVES:

- Enhance dependability of City wireless communications systems and related elements
- Ensure critical public safety communications capability inside of structures
- Provide objective criteria for that capability
- Provide clear methodology for compliance
- Provide testing for initial compliance
- Provide re-testing to ensure functionality
- Be flexible in implementation methodology while ensuring proper level of reliability

RECOMMENDATIONS:

- An approach that a number of jurisdictions around the country have adopted is placing the burden on the owner of a new building to ensure that public safety communications can function within that facility
- To achieve the communications goal, these ordinances typically specify:
  — A particular signal level that must be maintained over a certain percentage of the floor area
  — Testing procedures for City Staff to verify those levels
  — Technology solutions to achieve those levels
  — Ongoing monitoring and periodic testing requirements to ensure the function of the solution installed
- These ordinances typically exempt:
  — Buildings permitted in R-1 and R-2 zones
  — Wood frame buildings
  — Buildings 30 feet in height or less as long as the buildings do not make use of metal construction or have underground storage or parking areas

BUDGET: Not Applicable

FUNDING AVAILABILITY: Not Applicable